Cooperative State Planning And Research Program: Part II

OCTOBER 1998 - SEPTEMBER 1999: SPR-0010(992)

TRANSPORTATION RESEARCH AND DEVELOPMENT BUREAU
NEW YORK STATE DEPARTMENT OF TRANSPORTATION

COOPERATIVE STATE PLANNING AND RESEARCH PROGRAM: PART II
OCTOBER 1998 - SEPTEMBER 1999: SPR-0010(992)

September 1998

TRANSPORTATION RESEARCH AND DEVELOPMENT BUREAU
New York State Department of Transportation
State Campus, Albany, New York 12232-0869

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TABLE 1
SUMMARY OF COOPERATIVE STATE PLANNING AND RESEARCH PROGRAM:
SPR-0010(992) PART II 10/98 - 9/99

Project Number	Project Title & Research Supervisor	Annual Plan
10-01	Administration	330,000
10-02	Administration - Proj Selection/Prog Development	75,000
10-03	Administration - UTRC	25,000
10-04	Administration - Consortium/Contract Research	125,000
16-00	Training	50,000
	Subtotal	**605,000**
TECHNICAL ASSISTANCE AND TECHNOLOGY TRANSFER PROGRAM		
11-0	Information Exchange	350,000
11-01	Engineering Soils Survey (Walton)	5,000
11-02	Information Exchange - Library Operations (Frederick)	100,000
11-03	Information Exchange - Newsletters (Frederick)	15,000
11-04	Information Exchange - Library Support (Frederick)	20,000
12-0	Consultation	400,000
12-22	FHWA/SHRP-LTPP (Yang)	75,000
12-28	RDC Consultation	30,000
12-38	Consultation - Statistics (Sandhu)	100,000
12-48	SHRP Superpave (Yang)	20,000
12-49	Falling Weight Deflectometer (Yang)	50,000
12-57	Loss of Entrained Air Hardened Concrete (Yang)	60,000
12-60	Field Investigation Svs Life Corr Steel Culverts (Sandhu)	5,000
12-63	Const/Eval Noise Barrier With Recycled Plastic (Alampalli)	37,000
12-64	Develop Specifications Recycle Plastic For Hywy Application (Alampalli)	49,000
12-65	NDT Method Estimating Pavement Layer Thickness (Yang)	15,000
12-66	Quality Performance Mechanics For ITS Equipment Services (Valenti)	25,000
12-67	Peer Review (Perry)	10,000
12-68	Geotechnical Engineering Consultation (Sandhu)	30,000
13-0	Implementation	20,000
13-19	Implementation Shear-Key Performance Findings (Alampalli)	20,000
13-20	Implementation Composite Material for Bridge Rehabilition (Alampalli)	75,000
14-01	Local Technical Assistance Program (Valenti)	10,000
15-01	Engineering Computer Systems Support (Sandhu)	75,000
20-00	Contract Research (Valenti)	1,000,000
	Subtotal	**2,596,000**
EXPERIMENTATION PROGRAM: TYPE A CONTINUING STUDIES		
224-1	Development of an Overlay Design Procedure for NYS (Yang)	80,000
225-1	Hydr-Frac Test Apparatus & Proc Deter Aggregate Durability (Sandhu)	25,000
227-1	Compos Mat'ls Hy Bridge Const (Alampalli)	37,000
228-1	Post-Tensioning Steel Bridge Members (Alampalli)	50,000
	Subtotal	**192,000**
EXPERIMENTATION PROGRAM: TYPE B CONTINUING STUDIES		
217-1	Deter on Long-Term Perf of Chem Grouts in Concrete (Sandhu)	5,000
220-1	Evaluation of Winter Traffic Accidents (Sandhu)	10,000
	Subtotal	**15,000**
EXPERIMENTATION PROGRAM: PRE-PROJECT PLANNING		
	Subtotal	**0**
EXPERIMENTATION PROGRAM: PROJECTS NOT YET INITIATED/CONTINGENCIES		
	Projects Not Yet Initiated	70,000
	Consultations Not Yet Initiated	85,000
	Continencies - Base Research **	6,044,050
	Subtotal	6,199,050
GRAND TOTAL SPR-0010(992) PART II FY 10/98-9/99		**9,607,050**

** 4,722,800 Est Carry-in
7,247,950 FFY 99 Est Fed Authority
-5,926,700 FFY 99 Est Total Program

FFY 1999
SPR PART II - FUNDING SUMMARY

SPR PART II		80% FEDERAL	100% FEDERAL	PROGRAM TOTAL	Reimbursable TOTAL
RESEARCH PROGRAM *(See Table 1 for details)*	Q56-0010-992	**7,685,640**		**9,607,050**	**7,685,640**
FUNDED ACTIVITIES					
TRB GENERAL SUPP	Q56-0010-976		221,200	221,200	221,200
NCHRP	Q56-0004-198		1,800,000	1,800,000	1,800,000
POOLED FUNDS	Various		124,500	124,500	124,500
LTAP	Q56-LTAP-992	100,000		100,000	80,000
ITS PROGRAM COOR	IVHS-02-993	118,000		118,000	94,400
TOTAL PART II		**7,903,640**	**2,145,700**	**11,970,750**	**10,005,740**

100% STATE FUNDED STATE ACTIVITIES *(See Section VII for details)*		**TOTAL**
ADMIN STATE FUND	R01001801	50,000
UTRC-CURING	R01239801	5,000
COMPOSITE BRIDGE	R22701801	50,000
TOTAL 100% STATE		**105,000**

NOTE: CONTRACT RESEARCH

UNDERWAY - FUNDED WITH PRIOR MONIES

CURRENT LIST

Lateral Protection Short-Term Work Zones	80,000
CADD Expert Sys Blowing Snow Control	465,000
ITS Systems Benefits & Costs	201,200
Automating NYSDOT Data Collection	123,400
Automating NYSDOT Document Process	100,000
Managing Tort Liability	200,000
Public/Private Partnerships in Trans Section NYS	48,000
	1,217,600

PLANNED

Winter Maintenance Operations	200,000
Maximizing Aggregate-to-Cement Ratio in Concrete	580,000
A Trans Management Strategy for Optimum Economic Growth	200,000
An Infrastructure Remote-Monitoring Sys - Brooklyn Bridge	180,000
	1,160,000

PREFACE

This work program is a statement of transportation research and development activities that qualify for reimbursement from Federal Cooperative State Planning and Research (SPR) funds. It describes work that will be performed during the program period -- October 1998 through September 1999. Projects completed during the last six months are listed in Section VI, which also lists reports published in that period and Experimental Features that were evaluated in SPR projects. This section, along with the rest of the work program, serves as one of two semiannual reports on the research program.

Section VII lists all ongoing non-federally funded research projects. This section along with the rest of this publication presents the total research program.

Section I	Technical Assistance & Technology-Transfer Program
Section II	Experimentation Program: Types A & B Continuing Studies
Section III	Proposed Projects Not Yet Initiated
Section IV	Pooled SPR Fund Projects
Section V	Administration/Training
Section VI	Completed Projects
Section VII	100% State Funded Projects

All salary allocations included an estimated fringe-benefit factor of 30.80 percent (annual salary x .3080). The actual factor, to be established by the New York State Department of Audit and Control and Division of the Budget, represents the employer's share of workers compensation, hospitalization, retirement-fund charges, and other contributions.

Table 2A

PROJECTS NOT YET INITIATED: SPR–0010(992) Part II

ERTAP PROJECT NUMBER	TITLE	ERTAP CLASS*	ESTIMATED TOTAL PROJECT COSTS	ESTIMATED 1998–99 PROJ COSTS
	ERTAP APPROVED SUMMER 1993			
93–052	Development of Improved Pavement Performance Prediction Model	1	120,000	60,000
97–021	Elastic Behavior of Steel Bridges	1	250,000	10,000
			370,000	70,000

* Research project, applied

Table 2B

CONSULTATIONS NOT YET INITIATED: SPR–0010(992) Part II

ERTAP PROJECT NUMBER	TITLE	ESTIMATED TOTAL PROJ COST	ESTIMATED 1998–99 PROJ COSTS
93–082	Temperature Gradients in PCC Pavement for Different Regions in NYS	40,000	0
94–027	Effect of Vehicle–Generated Heat on Asphalt Pavement Rutting	50,000	0
94–028	Impact Perform Temporary Concrete Barrier Installed Transverse to the Roadway at Roadway Closure Sites	49,000	0
94–051	Analysis of Historical Cost Data	30,000	0
95–010	Selecting Design Criteria on Highway and Bridge Design Projects	30,000	0
95–073	Determination of Lane Storage and Downstream Transition Requirements	35,000	0
97–008	Assuring the Quality of Portland Cement Blended with Pozzolan	50,000	0
97–009	Full Penetration Groove Weld H–Pile Splice	50,000	10,000
97–010	Accelerated Curing Structural Concrete	50,000	25,000
97–011	Restoration of Public Confidence in Department Operations	20,000	20,000
97–026	Rumble Strips at Work Zone Lane Closures	40,000	20,000
97–030	Feasibility of Fireproofing of Bridges in Downstate New York	50,000	10,000
		494,000	85,000

Note: Consultations listed in numeric rather than priority order.

TABLE 3
100% SPR POOLED-FUND PROJECTS: SPR-0010(992) PART II

TITLE OF STUDY		FUNDING COMMITMENT	FY 1998	FY 1999	FY 2000	FUTURE
EXISTING NATIONAL STUDIES	**SPR-2**					
Testing of Roadside Safety Systems	(146)	$300,000	$300,000	$0	$0	$0
Performance Evaluation of Crumb Rubber Modified (CRM) Asphalt Pavements	(166)	$35,000	$5,000	$5,000	$0	$0
Long Term Field Monitoring of Mitigating Corrosion Inhibitors	(184)	$30,000	$6,000	$6000	$6,000	$0
Roadside Safety Hardware Crash Tested to NCHRP Report 350	(187)	$20,000	$5,000	$5.000	$0	$0
Support Maintenance and Refinement of the National Trans. Control/ITS Communications Protocol (NTCIP)	(189)	$25,000	$5,000	$5,000	$5,000	$0
Bridge Fatigue Screening, Monitoring and Retrofitting Manual	(197)	$30,000	$10,000	$10,000	$10,000	$0
Engineered Flowable Fill Bridge Approaches plus Abutment and Culvert Backfill Using Inexpensive Recycled Materials	(198)	$12,000	$6,000	$6,000	$0	$0
Optimal Acceptance Procedures for Statistical Construction Specifications	(199)	$20,000	$10,000	$10,000	$0	$0
Compilation and Evaluation of Results from High Performance Concrete Bridge Projects	(200)	$17,500	$10,000	$7,500	$0	$0
SUBTOTAL			$357,000	$54,500	$21,000	$0
EXISTING REGIONAL STUDIES	**SPR-3**					
Lateral Work Zone Protection *	(028)	$160,000	$0	$0	$0	$0
SUBTOTAL			$0	$0	$0	$0
PROPOSED NATIONAL STUDIES						
Development of Portable Scour Monitoring Equipment	S-98-45	$10,000	$5,000	$5,000	$0	$0
SUBTOTAL			$5,000	$5,000	$0	$0
PROPOSED REGIONAL STUDIES	**SPR-3**					
Crash-test Weak Post System - Phase 2	(058)	$20,000	$20,000	$0	$0	$0
Urban Mobility Study	(049)	$45,000	$15,000	$15,000	$15,000	$0
Fillet Welding Procedure Qualification Research	(046)	$5,000	$5,000	$0	$0	$0
Development of a New Guardrail End Treatment - Phase II	(043)	$10,000	$10,000	$0	$0	$0
Aurora Road and Weather Information System Consortium	(042)	$75,000	$25,000	$25,000	$25,000	$0
Hydralic Computer Models (Tidal &Stream Scour) Phase III	(022)	$50,000	$25,000	$25,000	$0	$0
Micro-surface Mix Design Procedure	(?)	$25,000	$25,000	$0	$0	$0
SUBTOTAL			$125,000	$65,000	$40,000	$0
TOTAL			$487,000	$124,500	$61,000	$0

* Coming from Contract Research funds - NYS share $80,000

FIGURE 1A: Organizational Structure

Total Positions: 42

- DIRECTOR
- CIVIL ENGINEER III
- ENGINEERING RESEARCH SPECIALIST I
- ADMINISTRATION/PUBLICATIONS SECTION
  - SR. LIBRARIAN
  - CLERK II
  - SECRETARY 1
  - CALC. CLERK II
  - ASSOC.ENG.RESEARCH
  - EDITOR
- ADMINISTRATIVE ASSISTANT

SUBTOTAL: 9

	STRUCTURES	MATERIALS/PAVEMENTS SPECIAL SERVICES	T^2/IMPLEMENTATION/
ENGINEERING RESEARCH SPECIALIST II	1	1	1
ENGINEERING RESEARCH SPECIALIST I	3	3	3
ASSOC. STATISTICIAN			1
SENIOR STATISTICIAN			1
SENIOR COMPUTER PROGRAMMER/ANALYST			1
PROGRAM RESEARCH SPECIALIST II (TRANS.)			1
CIVIL ENGINEER I	3	4	4
JUNIOR ENGINEER	1		1
LAB EQUIPMENT DESIGN	1		
ELECTRONIC EQUIPMENT MECHANIC	1		
PRINCIPAL ENGINEERING TECHNICIAN			1
SENIOR ENGINEERING TECHNICIAN			1
TOTAL	10	8	15

TRANSPORTATION RESEARCH & DEVELOPMENT BUREAU

MISSION: To manage a targeted transportation research and development program to enhance the quality and cost-effectiveness of engineering policies, practices, procedures, standards, and specifications. Activities performed to accomplish this mission include applied research, technical assistance, technology transfer, and engineering consultation.

DIRECTOR'S OFFICE (518) 457-5826
Fax (518) 457-7535

Dr. Robert J. Perry, Director
Nancy A. Troxell, Secretary I

MANAGEMENT SUPPORT

Robert A. Valenti, Civil Engineer III
Dr. Ossama Abd Elrahman, ERS I

Manage Local Technology Assistance Program Contract (LTAP).
Provide program liaison between external and internal stakeholders.
Develop program strategic planning, guidelines, and operating policies and procedures.
Conduct specialist studies requested by the Director.
Monitors University Transportation Research Consortium Projects.

STRUCTURES

Dr. Sreenivas Alampalli
Engineering Research Specialist II

Conducts research to develop and verify new structural design techniques and to refine existing methods.

Provides technical consultation and assistance in the area of structures.

Performs load capacity evaluations of existing structures through physical testing and analysis.

Evaluates equipment and procedures for bridge inspection and evaluation.

Performs mathematical analysis of unique structural configurations.

Provides assistance for structural evaluation and monitoring.

Performs finite element analyses.

Dr. Osman Hag-Elsafi, ERS I
Frank T. Owens, Civil Engineer I
George Schongar, Civil Engineer I
Jonathan Kunin, Junior Engineer
Harry Greenberg, Lab. Equip. Designer
Robert Desbois, Elect. Equip. Mechanic

MATERIALS/PAVEMENTS

Dr. Wei-Shih Yang
Engineering Research Specialist II

Conducts research to develop new or improved specifications for construction and maintenance materials.

Confirms or develops design, construction, and maintenance practices that promote effective, economical use of materials, and that result in more economical pavements, improved service, optimized performance, and extended service life.

Provides technical assistance in the subject areas of materials and pavements.

Coordinates FHWA/SHRP long-term pavement performance activities.

Performs analyses of pavements.

Dr. Luis Julian Bendaña, ERS I
Cheng Chou, MS, ERS I
Dr. M. Makbul Hossain, ERS I
Rick Morgan, Civil Engineer I
Tom Van Bramer, Civil Engineer I

TECHNOLOGY TRANSFER/IMPLEMENTATION/ SPECIAL SERVICES

Dr. Deniz Sandhu
Engineering Research Specialist II

Conducts engineering research to develop or improve specifications and practices in areas other than structures or materials/pavements.

Provides technical assistance and consultation in various engineering subject areas.

Provides Department-wide statistical consultation.

Coordinates distribution of federal technology transfer materials.

Administers implementation of research results within the Department.

Administers FHWA pooled-fund studies.

Determines the Department's desire to participate in federal demonstration projects and coordinates their scheduling.

Coordinates the federal Experimental Features program.

Dr. Michael Mathioudakis, ERS I
Colin Campbell, Program Resch. Specialist II
Ryan Lund, Junior Engineer
Ed Bikowitz, Principal Engineering Technician

ADMINISTRATION/PUBLICATIONS/LIBRARY

Mary J. Frederick
Administrative Assistant

Administers fiscal management of the Department's SPR-Part II Research Program.

Coordinates research suggestion process.

Provides editorial support to Department personnel.

Manages Department's Research Library including various on-line services to assist Department staff in performing literature searches.

Publishes various Department documents, including Bureau publications such as research reports, Quarterly R&D Digest, TNT Newsletter, ITS Newsletter, etc.

Provides Bureau's administrative and clerical support in Human Resource Management, budget preparation and monitoring of funds and special study analyses.

A. Donald Emerich, Assoc. Eng. Editor
Dorothy Hogan, Sr. Librarian
Linda Hotaling, Calculations Clerk 2
Marie Goldston, Clerk 2

SECTION I

Technical Assistance and Technology Transfer Program

PROJECT: **11-0 INFORMATION EXCHANGE**

SCOPE: As the title implies, this project covers activities providing for the transfer of technical information from one party to another. Other activities charged to this project include coordination of Experimental Feature Work Plans, support activities to the NCHRP Program, and coordination of pooled-fund projects. Examples of work performed under this project during the program period include:

1. Paul Mack, Robert Perry, Wes Yang, Sreenivas Alampalli, and members from Materials Bureau and Structures Division met with members from NIST to explore cooperation between the two agencies on evaluation and development of high-performance concrete for infrastructure applications. Sreenivas Alampalli coordinated a visit by the Department's 1998 TRB delegation to NIST laboratories. NIST staff members attended a deck-pour in the state to familiarize themselves with current Department practice and received information on the Materials Bureau's concrete testing database.

2. Julian Bendaña prepared a technical paper for the October 22, 1997 DOT/ACPA Pavement Task Force meeting on the influence various design features on load transfer (faulting) and structural capacity (cracking); among the variables to consider: base type (permeable, standard); slab thickness; joint spacing; PCC strength; dowel diameter; K-value; presence of widened lane; and presence of PCC shoulder.

3. Sreenivas Alampalli attended a meeting arranged by the Structures Division to discuss the Department's research efforts in the area of composite materials. Jim O'Connell, John Sadowski, Joe Savoie, Tom Moon, and Tadeusz Alberski from the Structures Division also attended the meeting.

4. Wes Yang, Makbul Hossain, Cheng Chou and Tom Van Bramer attended the Regional Materials Engineers meeting, October 30 -31, 1997 in Colonie, New York.

5. On October 22, 1997 Robert Valenti attended two meetings involving the Cornell Local Roads Program, the first with Training Bureau staff, the second with Steve Hewitt and Gayle Burgess of the Office of Governmental Relations. The subject of both meetings was partnering for effective outreach and assistance to local government highway agencies.

6. Julian Bendaña attended the Sixth International Purdue Conference on Concrete Pavement "Design and Materials for Highway Performance" held in Indianapolis, IN on November 18-21, 1997.

7. On December 1, 1997 Michael Mathioudakis coordinated a meeting between FHWA, the Geotechnical Engineering Bureau, the Society of the Plastics Industry, and Syracuse University to discuss the FHWA Priority Technologies Project, "Slope Stabilization with Geofoam." During the meeting, the parties involved in this jointly-sponsored project, discussed their needs and expectations for the deliverables of the project from Syracuse University.

8. On December 2, 1997 Deniz Sandhu met with Bob Puzier of the Thruway Authority. The goal of the meeting was to exchange information and identify opportunities for cooperation in winter maintenance research being conducted and planned by the two agencies.

9. Sreenivas Alampalli contacted members of the Department delegation to the TRB Annual Meeting to finalize arrangements for the delegation visit to the National Institute of Standards and Technology (NIST) facilities in Washington, DC, during the meeting.

10. Ruijia Mu served as an interpreter for a Chinese delegation from Shangdong Province during the delegation's visit to the Department. The Department arranged special presentations for the delegation on planning issues and ongoing research activities on high-performance concrete.

11. Tadeusz Alberski attended the International Composite Expo 1998, which was held in Nashville, Tennessee, January 17-21, 1998. The Expo is an international forum for scientists and the industry to review and share information on the latest technologies on composite materials.

12. On January 15, 1998, Sreenivas Alampalli and Osman Hag-Elsafi of TR&DB, and Joe Savoie of Structures Division visited the National Institute of Standards and Technology (NIST) in Washington, DC and met with NIST staff members. The visit program included a tour of the laboratories and discussion of venues for future collaboration between the Department and NIST on projects of mutual interest.

13. Sreenivas Alampalli attended the XVI International Modal Analysis Conference held in Santa Barbara, CA February 2-5, 1998. He presented a paper entitled "Influence of In-Service Environment on Modal Parameters", summarizing New York's experience on the effects on in-service conditions for developing remote bridge monitoring systems. He organized and chaired a session entitled

"New Technologies for System Identification" at the conference. He also moderated a forum on "Civil Engineering Structures Testing", attended by bridge testing engineers from several countries, to discuss recent developments covering testing and analytical techniques to monitor and assess the integrity of infrastructures.

14. Sreenivas Alampalli was invited by TRB to serve on the A2C05 Committee on "Dynamics and Field Testing of Bridges."

15. Sreenivas Alampalli and Arthur Yannotti of the Structures Division gave a presentation on "Performance of Integral Bridges and Jointless Decks" during Engineer's Week Celebrations at the Empire-State Plaza on February 25, 1998.

16. Sreenivas Alampalli attended "Structural Materials Technology: An NDT Conference" in San Antonio, TX, March 31 - April 3, 1998. Sreenivas was invited to attend this conference by FHWA/TXDOT. He gave a presentation on New York's experience with remote bridge monitoring systems.

17. A paper entitled "Performance of Full-Depth Shear-Keys in Adjacent Prestressed Box Beam Bridges," by J. Lall, E. DiCocco, and S. Alampalli was published in the PCI Journal, March-April 1998 issue. The paper summarizes a recently-concluded project on shear-key performance.

18. Bob Valenti arranged a presentation by the Center for Thermal Spray Technology at Stony Brook. Representatives from Structures, Materials, FHWA, and TR&DB attended the presentation. Stony Brook agreed to provide NYSDOT with additional information in order to allow it to make informed decisions on where this technology could be used in Department projects.

19. On May 2-15, 1998, Sreenivas Alampalli attended the NATO Advanced Study Institute "Modal Analysis and Testing Conference" and presented a paper entitled "Effects of Testing, Analysis, Damage, and Environment on Modal Parameters."

20. Wes Yang attended the AASHTO Joint Task Force on Pavements annual meeting in Burlington, VT on May 12-14, 1998. AASHTO 2002 Pavement Design Guide, AASHTO Pavement Management Guide, and Metric Version of 1996 AASHTO Pavement Design Guide were among the topics discussed at the meeting.

21. On May 28, Julian Bendaña attended High Performance Concrete Pavement TWG Meeting in Washington, D.C. The purpose of the meeting is to review an optimization program on materials and design

for the PCP and to provide input. This optimization procedure will be incorporated into a few demo projects in the USA.

22. Sam Elrahman participated in a seminar on Technology Transfer and International Issues, held in Casablanca, Morocco on May 18-22, 1998. Sam presented a paper co-authored with Bob Perry entitled, "An Effective Technology Transfer Framework."

23. Julian Bendaña was invited by the New York State Association of Transportation Engineers to make a presentation on Concrete Pavement Design at its upcoming Region 4 conference to be held Thursday, October 22, 1998.

24. Sam Elrahman co-authored a paper entitled "Towards a National Transportation Library", which appeared in the Spring issue of TR News.

25. Sreenivas Alampalli is working with Joseph Savoie of the Structures Division in arranging demonstration sites to evaluate the GPR system developed by the FHWA Turner Fairbanks Highway Research Center in Virginia. An e-mail was sent to Regional Structures Engineers requesting information on candidate bridges. Sreenivas Alampalli invited Thomas McNiff of Geo-Centers in Fairfax, Virginia to demonstrate their GPR system during the planned FHWA demonstration.

26. Sreenivas Alampalli and Osman Hag-Elsafi finalized a session entitled "Analytical and Numerical Techniques for Practicing Engineers" for the Structures Congress, to be held in new Orleans in April 1999. Sreenivas Alampalli is also cooperating with Masoud Sanayei of Tufts University, Boston, MA. to finalize a second session entitled "Bridge Foundation Identification and Evaluation" for the same congress.

27. Wes Yang has scheduled a workshop, FHWA Demonstration Project DP-115 "Probablistic Life Cycle Cost Analysis in Pavement Design," to be held in the Main Office on September 9-10, 1998. Call for nomination memos was sent to Regions and Planning, Design, GEB, and the Materials Bureau.

28. Bob Perry and Ossama Elrahman attended the National Research Advisory Council Meeting held in Nashville, Tennessee, August 2-5, 1998.

29. Peter Bajorski participated in the American Statistical Association annual meeting in Dallas, Texas, August 9-13, 1998, where he presented a paper entitled "Non-Discriminant Analysis for Ordered Variables."

STATUS:	Continuing
ESTIMATED 1998-1999 COSTS:	$350,000
CLIENT:	All Department Units

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01100881 TITLE : INFORMATION EXCHANGE
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 350000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	181719	181719	350000	350000	269231	269231
TOTAL COSTS	181719	181719	350000	350000	269231	269231

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **11–01 ENGINEERING SOILS SURVEY**

SCOPE: This project, in conjunction with the Natural Resources Conservation Services (NRCS), provides field sampling assistance, laboratory analysis, and engineering interpretation of the soil types encountered in a surveyed county. Field sampling of soils will be conducted in the counties where NRCS is surveying. The laboratory analysis and interpretations for these soils is scheduled. Next year the field survey has been cancelled by NRCS. However, funds will be needed to complete some existing laboratory work and investigate the NRCS computerization of the data.

STATUS: Continuing

ESTIMATED 1998–99 COSTS: $5,000

CLIENTS: All Department Units

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01101881 TITLE : ENGINEERING SOILS SURVEY
SECTION: ADMINISTRATION INVESTIGATOR: WALTON
CLIENT : GEOTECHNICAL ENGINEERING BUREAU
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 5000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	5000	5000	3846	3846
TOTAL COSTS	0	0	5000	5000	3846	3846

PROJECT: **11-02 INFORMATION EXCHANGE — LIBRARY OPERATIONS**

SCOPE: This project covers activities performed by the Bureau's library staff which include accessing current technical information through the maintenance of a collection of technical literature and conducting inquiries to various technical information services, State universities and State libraries to obtain research source material. The following is a summary of some activities performed under this project during SFY 1997–98:

• Reference Questions	983
• Inter-Library Loans	684
• New Acquisitions	1,723
• Literature Searches	319
• Circulation	1,097

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $100,000

CLIENT: All Department Units

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01102881 TITLE : INFO EX-LIBRARY OPERATIONS
SECTION: ADMINISTRATION INVESTIGATOR: ADMINISTRATION
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 100000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	67595	67595	100000	100000	76923	76923
TOTAL COSTS	67595	67595	100000	100000	76923	76923

PROJECT: **11-03 INFORMATION EXCHANGE — NEWSLETTERS**

SCOPE: The Quarterly R&D Digest published since 1977 changed to Transportation R&D News with its 61st issue in January 1995, reflecting this Bureau's own new name. It continues to serve as a forum for announcement of new publications and new research studies, with occasional feature articles concerning the research program, and is distributed throughout NYSDOT, to FHWA, and to other states. This year, a new order form was designed for insertion in each issue, simplifying the ordering of new publications by interested readers. Four issues were published during this program period.

In addition, the TNT technology transfer newsletter continued quarterly publication and distribution to all NYSDOT employees who have engineering titles. Its contents cover a broad range of technological innovation throughout the transportation world, with the intent of encouraging readers to seek further information and possible application within New York.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $15,000

CLIENT: All Department Units

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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01103881 TITLE : INFO EX - NEWSLETTERS
SECTION: ADMINISTRATION INVESTIGATOR: ADMINISTRATION
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 15000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	5888	5888	15000	15000	11538	11538
TOTAL COSTS	5888	5888	15000	15000	11538	11538

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **11-04 INFORMATION EXCHANGE — LIBRARY SUPPORT**

SCOPE: This project covers the acquisition of research resource material such as books, reports, periodicals, conference proceedings, etc. for the library.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $20,000

CLIENT: All Department Units

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01104881 TITLE : INFO EX - LIBRARY SUPPORT
SECTION: ADMINISTRATION INVESTIGATOR: ADMINISTRATION
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 20000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	7861	7861	20000	20000	15385	15385
TOTAL COSTS	7861	7861	20000	20000	15385	15385

PROJECT: **12–0 CONSULTATION**

SCOPE: This project provides a means of rendering advice and/or services in various areas of engineering technology and research methodology, such as design of experiments, instrumentation, and statistical analysis, for which the Bureau staff is uniquely qualified or equipped. Some activities conducted under this project during the program period included:

1. Mohamed Elkordy was invited by NSF to participate in evaluating proposals related to advance computation algorithms and non-destructive evaluation of bridges and concrete materials. Sreenivas Alampalli, Cheng Chou, Osman Hag-Elsafi and Makbul Hossain provided invaluable help in evaluating submitted proposals.

2. On September 8, 1997, Sreenivas Alampalli met with personnel from the Design Quality Assurance Bureau and Traffic and Safety to discuss metrication of the "Spanwire" computer program. The meeting participants agreed to review the new AASHTO draft specifications on the design of span-wire before taking further steps. The draft specifications were expected to be available by the end of the month.

3. Sreenivas Alampalli discussed with Steven Chase of Turner Fairbanks Highway Research Center testing of deteriorated prestressed box beams strengthened with composite laminates at the Research Center's facilities. The box beams were removed from a bridge being replaced in Albany County in March, 1998.

4. Makbul Hossain has been analyzing Route 23A FWD time history data to determine modulus of elasticity of Expanded Polystyrene Fill Geofoam). The results will be forwarded to Teh Sung of the Geotechnical Engineering Bureau.

5. At the request of the Geotechnical Engineering Bureau, Sreenivas Alampalli reviewed and commented on a research proposal entitled "Pilot Scale Field Testing for Feasibility Assessment, Demonstration, and Research on Composite Piles" by Juran et. al. The proposed project will be a cooperative effort involving the Hudson River Park Conservancy, FHWA, US Army Corps of Engineers, and Polytechnical University, Boston.

6. Julian Bendaña attended a pre-project meeting in New York City to discuss the rapid set concrete pavement to be used in the summer of 1998 at the Long Island Expressway (I-495). Since the pavement will be open to traffic when the concrete strength reaches 50% of the normal compressive strength, a finite element analysis was conducted to recommend gross vehicle weight (GVW) to reduce the potential for cracking.

7. On January 7, 1998, Sreenivas Alampalli of TR&DB, and Art Yannotti and Steve Hubbard of Structures Division, accompanied by Chuck King, Mohammed Ettouney, Robert Page of Weidlinger Associates, and Larry Sicone of Xsys Company, inspected the columns of Court Street Bridge over the Susquehanna River in Owego, Region 6. The purpose of the inspection was to assess feasibility of strengthening of the deteriorated bridge columns using composite wrapping. Later on, a proposal in this regard was submitted to the Department by Weidlinger Associates. Alampalli reviewed the proposal and forwarded his comments to the Structures Division.

8. Sreenivas Alampalli reviewed an instrumentation plan for fatigue testing of Exodermic Bridge Deck units. The plan has been implemented in the testing now underway at Clarkson University, under the supervision of Dr. Chris Higgins. Sreenivas Alampalli and Osman Hag-Elsafi of TR&DB, along with staff members from Structures Division and the NYS Thruway Authority visited Clarkson and discussed the testing with Dr. Higgins.

9. On April 14, 1998, Sreenivas Alampalli, Art Yannotti of Structures Division, and K. Luu of FHWA met with Region 6 and Dupont staff in Hornell to finalize issues regarding erecting a composite deck on a bridge in the Region (tentatively scheduled for May, 1998). Sreenivas Alampalli contacted the FHWA to discuss their participation in nondestructive testing of the deck using a mobile, dual-band infrared imaging system.

10. Julian Bendaña is designing an unbonded Portland cement concrete overlay for I-490 (P.I.N. 4490.05) from Gamsey Road to the Exit 45 Toll Plaza at the New York State Thruway. The design uses Mechanistic-Empirical approach, New York environmental conditions and data obtained from State highway agency practices with this rehabilitation technique. Results will be provided to Region 4 designers.

11. On June 10, 1998, Sreenivas Alampalli of TR&DB and Khuong Luu of FHWA, accompanied by personnel from Region 6 Design and Ali Ganjehlou of Sumitomo Corporation of

America, visited Church Street Bridge site near Elmira. Sumitomo Corporation is planning to donate composite materials for repairing cracked beam caps on this bridge. Preliminary design and construction issues were discussed at a meeting after the field visit.

12. At the request of the Structures Division, Sreenivas Alampalli and Osman Hag-Elsafi commented on a consultant's work plan for vibration analysis of Hoxie George Bridge columns, Contract D008956.

13. On July 14, 1998 Sreenivas Alampalli, Robert Desbois, and Khuong Luu of FHWA attended the pre-construction meeting for the "Court Street Column Wrap" demonstration project, and visited the bridge site. All six manufacturers participating in the demonstration attended the meeting which was held in Owego, NY. According to the current schedule, wrapping of the columns will be completed by the end of September of this year. Robert Desbois and Sreenivas will assist with necessary instrumentation and data collection for long-term monitoring of the columns. Robert Desbois visited Region 6 to observe installation of corrosion gauges and learn how to use associated instrumentation from Concorr Incorporated (Virginia) personnel.

14. Sreenivas Alampalli discussed the Church Street bridge cap-beam repair with composite wrapping with Mark Norfolk and Hector Hoyos of Region 6. Sreenivas recommended taking core samples from the cap beams of this bridge and also from the cap beams of another bridge built in the same contract, but not showing any signs of distress, for comparative analysis by Materials Bureau. Plans for instrumentation and monitoring will be developed based on the results of this analysis.

15. Osman Hag-Elsafi is finalizing a plan for testing of two of the five deteriorated beams which were removed from a bridge site in Region 1. He developed a Mathcad program for flexural design of prestressed concrete beams and confirmed its accuracy by comparing its results with those obtained using BRADD II bridge design package.

16. In answer to an earlier request from the Structures Division, Frank Owens and Osman Hag-Elsafi are investigating an alternative method for design of end plates of traffic signal structures. Testing to verify the method's accuracy under different loads and for an array of plate sizes, and comparison with finite element results is continuing. Once satisfactory results have been reached, a summary describing the design

procedure and a spreadsheet design tool will be finalized and discussed with the client.

17. Deniz Sandhu will serve as the Technical Services Division representative on the Technical Selection Committee (TSC) to evaluate alternatives to herbicides to control vegetation under guiderails and around signposts. The TSC consists of representatives from the Technical Services Division, Environmental Analysis Bureau, Transportation Maintenance Division, Landscape Architecture Division, and Cornell Cooperative Extension. The committee will prepare an RFP to solicit for demonstration projects, select candidate methodologies, and monitor and evaluate the selected demonstration projects.

18. Makbul Hossain and Deniz Sandhu cooperated in responding to several technology transfer and consultation tasks. These included (a) the evaluation of a proposal from Region 4 for an operational test to determine the amount of "residual" left behind on the pavement by various de-icers after storms, (b) providing information to Louisiana DOT on New York's experience with usage and effectiveness of Calcium Chloride and Magnesium Chloride in snow and ice management, (c) providing information to Transportation Maintenance Division on the comparison of research results obtained by NYSDOT and Ontario Ministry of Transportation on effectiveness of pre-wetting of abrasives on ice and packed snow.

19. On August 3, 1998 Sreenivas Alampalli and staff members from Region 6, Structures Division, and FHWA met with Hardcore Composites personnel at the Company's plant in Delaware. Design and construction issues related to the Bentley's Creek bridge deck replacement, with a composite deck, were discussed at the meeting.

20. On August 26, 1998, Sreenivas Alampalli and Tadeusz Alberski attended installation of Bennett's Creek composite superstructure in Region 6. The superstructure was manufactured by Hardcore Composites and installed by the Region's maintenance staff. Sreenivas is developing a long-term monitoring program for the new superstructure.

21. Sreenivas Alampalli discussed the Church Street bridge cap-beam repair project with Mark Norfolk and Hector Hoyos of Region 6. In this project, two of the deteriorated cap beams of a bridge will be rehabilitated using bonded composite laminates. Sreenivas is also coordinating testing of the core samples taken from these cap-beams with the Materials

Bureau. Osman Hag-Elsafi is preparing an instrumentation plan for testing and monitoring of the cap-beam stresses before and after composite sheeting rehabilitation.

22. Bob Desbois supervised installation of corrosion sensors for Court Street column wrapping project in Region 6 and recorded data from the installed sensors.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $400,000

CLIENT: All Department Units

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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01200881 TITLE : CONSULTATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 455000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	153842	153842	455000	455000	350000	350000
TOTAL COSTS	153842	153842	455000	455000	350000	350000

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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01222881 TITLE : FHWA-LTPP
SECTION: MATER./PAVING INVESTIGATOR: DR. YANG
CLIENT : N/A
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 200000

PROJECT INITIATION DATE : 07/07/1988
STUDY PROPOSAL DUE : 01/03/1989
STUDY PROPOSAL COMPLETED: 07/12/1988
STUDY PROPOSAL APPROVED : 07/12/1988
ORIGINAL COMPLETION DATE: 03/31/1993
REVISED COMPLETION DATE : 09/30/2003
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	20097	333057	45000	789000	34615	463615
TOTAL COSTS	20097	333057	45000	789000	34615	463615

OBJECTIVE: To provide the staffing, expertise, and all necessary technical assistance for FHWA-LTPP related activities (e.g., GPS/SPS, Seasonal Monitoring Program and WIM, etc.) in New York State.

PROGRESS: Normal duties were performed (arranging traffic control, maintaining files, answering correspondence, etc.). Remarked LTPP sites.

SIX-MONTH PLAN: Continue to coordinate activities between the Department and FHWA's contractor. Transmit inventory data on all GPS and the SPS-8 sections to FHWA'S contractor as it becomes available. Visit all sites to ensure markings and stripes are in good condition and fix any stripes and/or marks as necessary.

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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01228881 TITLE : RDC CONSULTATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 20000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	1222	1222	20000	20000	15385	15385
TOTAL COSTS	1222	1222	20000	20000	15385	15385

PROJECT: **12-38 CONSULTATION (STATISTICS)**

SCOPE: This project covers statistical services provided by the Bureau's statistician to various clients throughout the Department. Some of the analyses provided during the program period include:

1. Deniz Sandhu is working with Kevin O'Buckley of Region 4 in developing an evaluation plan for the zero-velocity spreaders this winter. She is also coordinating efforts with Clarkson University for the evaluation of MAGIC throughout the State.

2. On December 19, 1997 Peter Bajorski met with Tom Moon and Werner Classen of the Structures Division and presented the new conversion procedure to obtain the federal bridge ratings from state bridge ratings. This new procedure provides a significant improvement over the current method, but still requires some additional work before it can be implemented.

3. On April 3 and 9, Deniz Sandhu met with representatives from the Traffic Engineering & Planning, Design, Construction, and Technical Services Divisions to discuss the Department's Raised Snow Plowable Pavement Marker (RSPPM) initiative. Under the initiative approximately 700 center-lane miles of roadway will be installed with RSPPMs during this construction season. The lead for the initiative is the Safety Program Management Bureau. TR&DB's role is to evaluate the effectiveness of these markers in reducing night-time wet-pavement accidents and to assist the Materials Bureau with the durability and economic evaluation of alternative delineation methods. The safety evaluation plan and the data collection needs for the project were prepared and forwarded to the Safety Program Management Bureau. On April 14, in a meeting with Deputy Commissioner Frank Gerace, and Assistance Commissioner Ken Shiatte the action plan for the initiative was finalized and regions started working on the contracts to be awarded.

4. At the request of Bill Snyder of the Materials Bureau, Deniz Sandhu completed the analysis of the strength tests performed on 4x8 cylinders using neoprene pads and sulfur capping. The results and recommendations were presented to the Materials Bureau staff during a meeting on July 30, 1998. These results will be discussed with representatives from pre-cast concrete industry on August 12, 1998.

5. On July 30, 1998, Deniz Sandhu attended a meeting with representatives from Traffic Engineering and Safety and the Materials Bureau to discuss the evaluation plan for the RPMS that will be installed this summer.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $100,000

CLIENT: All Department Units

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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01238881 TITLE : CONSULTATION (STATISTICS)
SECTION: TECH/TRAN INVESTIGATOR: DR. BAJORSKI
CLIENT : ALL SECTIONS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 100000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	70099	70099	100000	100000	76923	76923
TOTAL COSTS	70099	70099	100000	100000	76923	76923

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PROJECT: R01248881 TITLE : SHRP SUPERPAVE
SECTION: MATER./PAVING INVESTIGATOR: DR. HOSSAIN
CLIENT : MATERIALS BUREAU
CONTRACTOR :

PROJECT INITIATION DATE : 07/18/1994
STUDY PROPOSAL DUE : 01/14/1995
STUDY PROPOSAL COMPLETED: 07/18/1994
STUDY PROPOSAL APPROVED : 07/18/1994
ORIGINAL COMPLETION DATE: 09/30/1999
REVISED COMPLETION DATE : 09/30/1999
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 250000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	30283	212285	50000	250000	38462	218462
TOTAL COSTS	30283	212285	50000	250000	38462	218462

OBJECTIVE: To provide the staffing, the expertise and the necessary technical assistance to coordinate such Superpave-related activities as Operational Goal #94-5, testing and mix design plans, and QA/QC Program, etc.

PROGRESS: Conducted field survey of 1998 Superpave jobs.

SIX-MONTH PLAN: Continue providing technical assistance to Superpave projects, and continue performing FWD testing for structural evaluation of pavements related to Superpave jobs as a part of Superpave performance evaluation.

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PROJECT: R01249881 TITLE : FALLING WEIGHT DEFLECTOMETER
SECTION: MATER./PAVING INVESTIGATOR: DR. YANG/DR. HOSSAIN
CLIENT : SOIL MECHANICS BUREAU
CONTRACTOR :

PROJECT INITIATION DATE : 09/30/1994
STUDY PROPOSAL DUE : 03/29/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1997
REVISED COMPLETION DATE : 09/30/2000
REVISION NUMBER : 1

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 150000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	18724	210162	50000	370000	38462	263462
TOTAL COSTS	18724	210162	50000	370000	38462	263462

OBJECTIVE: To provide the staffing, expertise, and all necessary technical assistance to coordinate the following FWD-related activities:

1. Perform FWD testing to support Project R-224-01, "Development of Overlay Design Procedure."
2. Perform FWD testing to evaluate field performance of superpave jobs, Project R-012-48."

PROGRESS: Performed FWD time-history analysis from several FWD jobs to determine layer modulus.

SIX-MONTH PLAN: Continue FWD time-history analysis and collect 1998 FWD data.

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PROJECT: R01252881 TITLE : GEOSYNTHETIC SLOPES & RETAIN WALLS
SECTION: TECH/TRAN INVESTIGATOR: DR. MATHIOUDAKIS
CLIENT : GEOTECHNICAL ENGINEERING BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 45000

PROJECT INITIATION DATE : 11/22/1994
STUDY PROPOSAL DUE : 05/21/1995
STUDY PROPOSAL COMPLETED: 11/22/1994
STUDY PROPOSAL APPROVED : 11/22/1994
ORIGINAL COMPLETION DATE: 03/31/1996
REVISED COMPLETION DATE : 03/31/1998
REVISION NUMBER : 2

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	547	10830	20000	45000	15385	40385
TOTAL COSTS	547	10830	20000	45000	15385	40385

OBJECTIVE: To develop guidelines for design and acceptance of geosynthetics installed in slopes and retaining walls.

PROJECT CLOSED. THIS EFFORT WILL BE CHANGED FROM A PROJECT INTO AN ON-GOING CONSULTATION, R01268881. The scope of this project over the last four years has been to provide on-going technical assistance and technology transfer to Geotechnical Engineering Bureau on innovative materials for embankments and slopes. The nature of the assistance was to monitor and review the products of NCHRP, HITEC, and FHWA projects and national standards and recommend modifications so that they conform to our standards. These efforts will be captured under the new consultation PIN which will be renewed on an annual basis.

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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PROJECT: R01257881 TITLE : LOSS OF ENTRAINED AIR HRD CONCRETE
SECTION: MATER./PAVING INVESTIGATOR: CHOU
CLIENT : MATERIALS BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 50000

PROJECT INITIATION DATE : 05/19/1995
STUDY PROPOSAL DUE : 11/15/1995
STUDY PROPOSAL COMPLETED: 05/19/1995
STUDY PROPOSAL APPROVED : 05/19/1995
ORIGINAL COMPLETION DATE: 09/30/1997
REVISED COMPLETION DATE : 09/30/1999
REVISION NUMBER : 2

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	28941	35240	60000	150000	46154	136154
TOTAL COSTS	28941	35240	60000	150000	46154	136154

OBJECTIVE: To develop a user-friendly manual to assist concrete mix designers and concrete manufacturers in evaluating, screening and selecting effective and efficient air entraining agents in the present U.S. market, and in determining under what conditions prescribed air content and spacing factors are lost in hardened concrete (water/cement ratio, aggregate, vibration, mix action, admixtures, slump, temperature, etc.) and how the problems can be avoided or solved.

PROGRESS: (1) The Chemical Laboratory is continuing their evaluation of report, "Proposed Laboratory Test Method for Preliminary Evaluating, Screening, and Preliminary Selecting Air Entrain Agents." (2) Continued work on the draft of the final report.

SIX-MONTH PLAN: Continue to work on the final report.

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01260881 TITLE : FLD INVEST SVS LIFE CORR STEEL CULV
SECTION: TECH/TRAN INVESTIGATOR: DR. SANDHU
CLIENT : DESIGN DIVISION
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 35000

PROJECT INITIATION DATE : 03/13/1996
STUDY PROPOSAL DUE : 09/09/1996
STUDY PROPOSAL COMPLETED: 03/13/1996
STUDY PROPOSAL APPROVED : 03/13/1996
ORIGINAL COMPLETION DATE: 08/01/1996
REVISED COMPLETION DATE : 12/31/1998
REVISION NUMBER : 4

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	970	45596	15000	65000	11538	61538
TOTAL COSTS	970	45596	15000	65000	11538	61538

OBJECTIVE: The goal of this study is to verify the assumptions made for metal loss rates in the design of corrugated steel culverts. A larger sample of the culverts included in the original study was loacated and visited to measure remaining metal thickness and observe their field performance. The study concentrated on Zone 2 culverts since the statistical analysis suggested a larger discrepancy in the metal-loss rates for this geographical area.

PROGRESS: Culverts were identified, located, inspected and measured for remaining metal thickness as of December 1996. Statistical analysis of field data is in progress.

SIX-MONTH PLAN: Analyze data and report the results.

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PROJECT: R01263881 TITLE : CONST/EVAL NOISE BARRIER W/RECYCLED
SECTION: STRUCTURES INVESTIGATOR: DR. HAG-ELSAFI
CLIENT : VARIOUS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 50000

PROJECT INITIATION DATE : 10/17/1996
STUDY PROPOSAL DUE : 04/15/1997
STUDY PROPOSAL COMPLETED: 02/14/1997
STUDY PROPOSAL APPROVED : 02/14/1997
ORIGINAL COMPLETION DATE: 03/31/1998
REVISED COMPLETION DATE : 03/31/1999
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	1978	9824	42000	50000	32308	40308
TOTAL COSTS	1978	9824	42000	50000	32308	40308

OBJECTIVE: 1) Construct and monitor a noise wall at a selected Long Island site, recording viable construction techniques and costs, evaluating acoustic effectiveness, and assessing public acceptance; 2) monitor most important recycled plastic material properties for changes due to exposure to field consitions; and 3) evaluate the testing experience, and modify the proposed standards and specifications in Project 12-44 as appropriate.

PROGRESS: Construction of the noise wall was scheduled for fall or early summer; however,it was postponed due to the contruction project schedule.

SIX-MONTH OBJECTIVE: Monitor the wall during and after construction. objectives.

PROJECT: R01264881 TITLE : DEV SPECS RECYCLED PLASTIC HY APP
SECTION: STRUCTURES INVESTIGATOR: DR. HAG-ELSAFI
CLIENT : EAB, DQAB, MATERIALS, STRUCTURES
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 50000

PROJECT INITIATION DATE : 04/24/1997
STUDY PROPOSAL DUE : 10/21/1997
STUDY PROPOSAL COMPLETED: 04/24/1997
STUDY PROPOSAL APPROVED : 04/24/1997
ORIGINAL COMPLETION DATE: 06/30/1998
REVISED COMPLETION DATE : 06/30/1999
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	27	50000	50000	38462	38462
TOTAL COSTS	0	27	50000	50000	38462	38462

OBJECTIVE: Identify potential highway applications for recycled plastics and develop specifications for materials to be used in those applications. This objective can be accomplished in two phases: 1) identification of potential highway applications, and 2) depending on the findings, development of additional specifications.

PROGRESS: Project initiated April 1997. No progress, due to lack of staff.
SIX-MONTH PLANS: Pending staff availability, reinitiate the project to the stated objectives, and prepare a draft report for the client's review.

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PROJECT: R01265881 TITLE : NDT METH EST PAV LAYER THICKNESS
SECTION: MATER./PAVING INVESTIGATOR: DR. HOSSAIN
CLIENT : GEOTECHNICAL ENGINEERING BUREAU
CONTRACTOR :

PROJECT INITIATION DATE : 05/19/1997
STUDY PROPOSAL DUE : 11/15/1997
STUDY PROPOSAL COMPLETED: 05/19/1997
STUDY PROPOSAL APPROVED : 05/19/1997
ORIGINAL COMPLETION DATE: 09/30/1999
REVISED COMPLETION DATE : 09/30/1999
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 40000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	16483	25520	20000	40000	15385	20385
TOTAL COSTS	16483	25520	20000	40000	15385	20385

OBJECTIVE: Develop a procedure to determine pavement surface layer thickness from NDT data.

PROGRESS: Performed analysis on several FWD sites including ACC, PCC, and AC/PCC pavements.

SIX-MONTH-PLAN: Continue working with FWD data and complete the final report.

PROJECT: R01266881 TITLE : QTLY PERF MECH ITS EQUIP & SVS
SECTION: TECH/TRAN INVESTIGATOR: DR. ELRAHMAN
CLIENT : TRAFFIC ENG & SAFETY DIVISION
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 45000

PROJECT INITIATION DATE : 05/20/1997
STUDY PROPOSAL DUE : 11/16/1997
STUDY PROPOSAL COMPLETED: 05/20/1997
STUDY PROPOSAL APPROVED : 05/20/1997
ORIGINAL COMPLETION DATE: 06/30/1998
REVISED COMPLETION DATE : 06/30/1999
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	553	25000	45000	19231	29231
TOTAL COSTS	0	553	25000	45000	19231	29231

OBJECTIVE: The goals are to explore methods of improving the ITS procurement process, to ensure that quality and performance factors are properly addressed in contracting procedures. The objectives are to: 1) examine past/existing Department ITS procurement as case studies, and contracting mechanisms (such as capital projects and service contracts) will be investigated; 2) gather information on national and international efforts to improve ITS contracting processes. High-technology agencies' processes will be examined; 3) recommend specific improvements for NYSDOT ITS procurement; and, 4) develop sample procurement documents incorporating improved contracting items.

PROGRESS: Literature review and survey of NYSDOT and national contracting procedures are complete. ITS provisions in TEA-21 were analyzed.

SIX-MONTH-PLAN: Continue to analyze Department ITS procurement mechanisms and identify shortcomings of existing contracting for ITS services; develop contracting methods that may prove successful in adding quality to ITS contracting.

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PROJECT: R01267881 TITLE : PEER REVIEW
SECTION: ADMINISTRATION INVESTIGATOR: DR. PERRY
CLIENT : FHWA
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 10000

PROJECT INITIATION DATE : 09/03/1997
STUDY PROPOSAL DUE : 03/02/1998
STUDY PROPOSAL COMPLETED: 09/03/1997
STUDY PROPOSAL APPROVED : 09/03/1997
ORIGINAL COMPLETION DATE: 10/01/1998
REVISED COMPLETION DATE : 10/01/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	10000	10000	7692	7692
TOTAL COSTS	0	0	10000	10000	7692	7692

OBJECTIVE: TO COMPLY WITH FHWA RULES AND REGULATIONS: 23CRF PART 420.207(b).

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **12-68 GEOTECHNICAL ENGINEERING CONSULTATION**

SCOPE: To provide on-going technical assistance and technology transfer to the Geotechnical Engineering Bureau.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $30,000

CLIENT: Geotechnical Engineering Bureau

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PROJECT: R01268881 TITLE : GEOTECH ENGINEERING CONSULTATION
SECTION: TECH/TRAN INVESTIGATOR: DR. MATHIOUDAKIS
CLIENT : GEOTECHNICAL ENGINEERING BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 20000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	20000	20000	15385	15385
TOTAL COSTS	0	0	20000	20000	15385	15385

PROJECT: **13-0 IMPLEMENTATION**

SCOPE: Activities conducted under this project are directed at cooperating with Department staff in implementing the results of research conducted by the Bureau and other agencies. In the case of in–house research, this project permits "implementation follow–through" after the research projects are completed and terminated.

Activities will be undertaken primarily by Bureau staff and members of appropriate Department Technical Working Groups who will provide guidance on packaging, planning, promotion, and delivery strategies needed to assess new technologies or products. Bureau staff are available to assist end-users on both the evaluation and initiation of these new products and technologies, and provide a feedback loop for positive communication of findings.

1. Osman Hag-Elsafi visited a test-wall site in Long Island and collected traffic noise data at several locations, and discussed the results with Bill McColl of the Environmental Analysis Bureau. On a second visit to the site, he was joined by Bill McColl to lay out the final details of a plan to investigate acoustic effectiveness of the test wall.

2. On October 2, 1997, Sreenivas Alampalli met with Eugene DiCocco and Todd Westhuis of Structures Division to discuss implementation of Report 124 "Full-Depth Shear-key Performance in Adjacent Prestressed-Beam Bridges", recommendations in the design of an experimental bridge planned for 1998.

3. On October 27, 1997, Sreenivas Alampalli met with Richard Stemple and Terry Hale of Design Quality Assurance Bureau, and Guillermo Ramos of Traffic and Safety to discuss modification of the "Spanwire" program. Rather than waiting for a number of years for the new AASHTO specifications to be finalized, they agreed to proceed with the proposed modifications. A list of new features to be included in the new program was prepared.

4. Osman Hag-Elsafi is still preparing a test plan to evaluate acoustic effectiveness of a test-wall to be built in Long Island.

5. Sreenivas Alampalli met with Eugene DiCocco of Structures Division to discuss progress of the full-depth shear-key implementation project. The Structures Division proposed two

more candidate bridges to be included in the implementation plan. Eugene and Sreenivas met with Steve Hubbard of the Structures Division to discuss suitability of the proposed bridges.

6. Sreenivas Alampalli and Eugene DiCocco of the Structures Division visited Region 1 and gave a presentation to Region 1 Design and Construction personnel, summarizing the results of the "Shear-Key" project. The emphasis of the presentation was on the quality control in shear-key installation during the construction and other recommendations of the study. They are planning similar presentations in Region 2 and 8 in coming months.

7. Julian Bendaña finished the design of an unbonded Portland cement concrete overlay for I-490 (P.I.N. 4490.05) from Gamsey Road to the Exit 45 Toll Plaza at the New York State Thruway. The design use's the mechanistic-empirical approach.

8. On July 21, 1998, Osman Hag-Elsafi gave a presentation on noise barriers made of recycled plastic lumber to Region 9 staff members. After the presentation, he discussed the necessary steps for the Region to develop specifications and plans for a similar barrier to be built on Rt. 17, near Binghamton, and later on assisted in this regard. Recylced plastic was proposed to the Region as an alternative barrier material in this project.

STATUS: Continuing

1998–99 COSTS: $20,000

CLIENT: All Department Units

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PROJECT: R01300881 TITLE : IMPLEMENTATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 15000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	5886	5886	15000	15000	11538	11538
TOTAL COSTS	5886	5886	15000	15000	11538	11538

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PROJECT: R01310881 TITLE : IMPLEMENTATION OF GLASGRID
SECTION: TECH/TRAN INVESTIGATOR: VALENTI
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 40000

PROJECT INITIATION DATE : 10/01/1992
STUDY PROPOSAL DUE : 03/30/1993
STUDY PROPOSAL COMPLETED: 10/01/1992
STUDY PROPOSAL APPROVED : 10/01/1992
ORIGINAL COMPLETION DATE: 03/31/1995
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 6

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	7281	67114	5000	65000	3846	63846
TOTAL COSTS	7281	67114	5000	65000	3846	63846

OBJECTIVE: Evaluate Glasgrid's ability to retard reflective cracking and compare its performance and cost-effectiveness to sections with 1" thicker overlays.

PROGRESS: Cores have been analyzed and results of crack surveys are under statistical analysis.

SIX-MONTH PLAN: Complete and publish final report, close Project.

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **13-14 IMPLEMENTATION OF SHRP PRODUCTS**

SCOPE: This project covers all activities performed by the Bureau, Department Implementation Committees, and end-users for evaluation and implementation of SHRP products. Scheduling, field evaluation, and final reporting activities for all SHRP products will be reported under this function.

1. The fifth SHRP Implementation progress repot on the evaluation of SHRP products is in the final publication phase.

2. All activities related to NYSDOT lead state responsibilities for Superpave ™ and Anti-Icing/RWIS.

3. Completion of projects as a result of positive activities conducted thus far.

STATUS: Closed -- activities being assigned under other PINs.

ESTIMATED 1998-99 COSTS: $0

CLIENT: All Department Units.

PROJECT: R01314881 TITLE : IMPLEMENTATION -SHRP PRODUCTS
SECTION: TECH/TRAN INVESTIGATOR: VALENTI
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 30000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	12010	12010	27000	27000	20769	20769
TOTAL COSTS	12010	12010	27000	27000	20769	20769

OBJECTIVE: Ensure the timely evaluation and implementation of SHRP products.

PROGRESS: Fifth report published.

PROJECT CLOSED: Future SHRP activities to be accomplished under other project numbers.

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PROJECT: R01319881 TITLE : IMPL SHEAR-KEY PERF PROJ FINDINGS
SECTION: STRUCTURES INVESTIGATOR: DR. ALAMPALLI
CLIENT : STRUCTURES DIVISION
CONTRACTOR :

PROJECT INITIATION DATE : 05/07/1997
STUDY PROPOSAL DUE : 11/03/1997
STUDY PROPOSAL COMPLETED: 05/07/1997
STUDY PROPOSAL APPROVED : 05/07/1997
ORIGINAL COMPLETION DATE: 12/31/1998
REVISED COMPLETION DATE : 12/31/2000
REVISION NUMBER : 1

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 45000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	3343	5193	20000	45000	15385	20385
TOTAL COSTS	3343	5193	20000	45000	15385	20385

OBJECTIVE: To investigate the effect of increased deck-overlay reinforcement and greater transverse post-tensioning force in reducing shear-key related longitudinal deck cracking on adjacent-prestressed-beam bridges.

PROGRESS: All the test structures were identified for implementing the recommendations. These structures will be constructed this year's and next year's construction cycle.

SIX-MONTH PLAN: Monitor the test structures for cost, constructability and serviceability issues associated with recommended changes.

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **13-20 IMPLEMENTATION OF COMPOSITE MATERIALS FOR BRIDGE REHABILITATION**

SCOPE: This project provides assistance to Structures Division and the regions in evaluating composite materials for structural applications, instrumenting and monitoring demonstration projects as needed, and developing guidelines for future application of these products by the Department.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $75,000

CLIENT: Structures Division and Regions

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PROJECT: R01320881 TITLE : IMPL COMPOSITE MAT'LS FOR BR REHAB
SECTION: STRUCTURES INVESTIGATOR: DR. ALAMPALLI
CLIENT : STRUCTURES DIVISION AND REGIONS
CONTRACTOR :

PROJECT INITIATION DATE : 07/15/1998
STUDY PROPOSAL DUE : 01/11/1999
STUDY PROPOSAL COMPLETED: 07/15/1998
STUDY PROPOSAL APPROVED : 07/15/1998
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 10000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	10000	10000	7692	7692
TOTAL COSTS	0	0	10000	10000	7692	7692

PROJECT: **14-01 LOCAL TECHNOLOGY ASSISTANCE PROGRAM**

SCOPE: Cornell University, sponsored by the Department of Transportation and FHWA, has been contracted to provide training and technology transfer to local municipal highway personnel. These services are provided through formal instructional classes, direct mailings, conferences, and phone calls.

Activities conducted under this project during the program year included:

1. Cornell published its annual report highlighting its CY 1997 accomplishments. This report was reviewed by Transportation Research and forwarded to FHWA.

2. Upon Transportation Research recommendation, FHWA approved the 1998 work plan for LTAP.

3. In December, 1997, Robert Valenti attended the LTAP Planning Committee Meeting in Binghamton, New York. During this meeting, the agenda for the June, 1998 Annual Highway School was determined.

4. Cornell held its annual Highway Superintendents School on June 8-10, 1998 at Ithaca College, Ithaca, NY. Bob Valenti made a presentation snow plow lighting at a general session, then attended the planning committee meeting held immediately following the school.

5. Bob Valenti attended the 1998 national LTAP Conference July 26-29, in Salt Lake City, UT. Partnering initiatives, among state, federal, local jurisdictions and professional associations were the major theme of the conference.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $10,000

CLIENT: Municipal highway officials in all local jurisdictions.

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PROJECT: R01401881 TITLE : LOCAL TECHNICAL ASSISTANCE PROGRAM
SECTION: TECH/TRAN INVESTIGATOR: VALENTI
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 10000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	7933	7933	10000	10000	7692	7692
TOTAL COSTS	7933	7933	10000	10000	7692	7692

OBJECTIVE: Provide technical engineering services to local municipal highway personnel through contractual agreement with Cornell University.

PROGRESS: 1998 Annual Highway School conducted. 1998 Work Plan approved and budgeted.

SIX-MONTH PLAN: Provide Technology Transfer activities as necessary. Plan 1999 School. Provide additional services to Traffic Engineering & Safety under 402.

PROJECT: **15-01 ENGINEERING COMPUTER SYSTEMS SUPPORT**

SCOPE: This project covers all activities performed by the Bureau's Senior Computer Analyst and Computer Coordinator, including planning, management, and maintenance of the hardware and software for the Bureau's computer network and personal computers. This function also includes software development and programming for Engineering Research projects and consultations.

Activities conducted under this project during the program year include:

1. ANSYS 5.3 finite element analysis software was upgraded.

2. New IBM PC 340's were received and added to Novell Network.

3. Corel Office software was upgraded.

4. GroupWise software was upgraded.

5. Some PC's were upgraded to Win95 operating system.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $75,000

CLIENT: All Department Units

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PROJECT: R01501881 TITLE : ENGINEERING COMPUTER SYS SUPPORT
SECTION: TECH/TRAN INVESTIGATOR: DR. SANDHU
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 100000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	68450	68450	100000	100000	76923	76923
TOTAL COSTS	68450	68450	100000	100000	76923	76923

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PROJECT: R02000881 TITLE : CONTRACT RESEARCH
SECTION: ADMINISTRATION INVESTIGATOR: VALENTI
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 1301000

PROJECT INITIATION DATE : 10/01/1993
STUDY PROPOSAL DUE : 03/30/1994
STUDY PROPOSAL COMPLETED: 10/01/1993
STUDY PROPOSAL APPROVED : 10/01/1993
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	1262400	1262400	971077	971077
TOTAL COSTS	0	0	1262400	1262400	971077	971077

OBJECTIVE: To conduct a program of contract research to address Department needs which can not be handled by the Transportation Research and Development Bureau.

PROGRESS: (1) "Improved Visibility for Snow Plow Operations" - project completed 6/30/96. (2) "Cost Effectiveness of Consolidating Government Services" - project completed 10/31/96, (3) "Effective Marketing of Transit and HOV" - project completed 12/31/97 (4) "Review and Development of Life-Cycle Costs and Network Analysis" - project completed 1/31/98, (5) CADD Based Design for Blowing Snow Control," contract signed, work started.

SIX-MONTH PLAN: Technical Work Groups (TWGs) are negotiating scope of services for the following projects. The contracts are expected to be signed within the next six months:

1. Winter Maintenance Operation (200,000)
2. Automating NYSDOT Data Collection ($123,400)
3. Intelligent Transportation Systems Benefits and Costs ($201,200)
4. Generating, Distributing and Tracking NYSDOT Documents ($100,000)
5. Managing TORT Liability ($100,000)
6 Public/Private Partnerships in Transportation in NYS ($48,000)
7. Lateral Protection for Safety in Short-Terms Workzones ($80,000)

The above first six contracts represent approximately $773,000 in consortium funding (item 7 funding is first cycle contract research). Titles and funding amounts are subject to change pending review by the technical working groups.

Three new studies are in planning stage (1) Maximizing Aggregate-to-Cement Ratio in Concrete, (2) A Transportation Management Strategy for Optimum Economic Growth, and (3) An Infrastructure Remote-Monitoring System for the Brooklyn Bridge.

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PROJECT: R02004881 TITLE : EFF MKT OF TRANSIT SYS AND HOV
SECTION: ADMINISTRATION INVESTIGATOR: R. SVEJKOVSKY
CLIENT : REG 3 PLANNING & PROGRAM DEV
CONTRACTOR : CORNELL UNIVERSITY

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 127055

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 01/27/1995
STUDY PROPOSAL APPROVED : 07/20/1995
ORIGINAL COMPLETION DATE: 03/31/1996
REVISED COMPLETION DATE : 12/31/1997
REVISION NUMBER : 3

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	12706	129906	87050	127050	66962	106962
TOTAL COSTS	12706	129906	87050	127050	66962	106962

OBJECTIVE: To discover and recommend effective outreach programs and policy actions needed to achieve a shift to intermodal transportation systems.

PROGRESS: PROJECT COMPLETED 12/31/97.

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PROJECT: R02005881 TITLE : REV & DEV LIFE-CYCLE COST & NETW
SECTION: ADMINISTRATION INVESTIGATOR: J.SHUFON
CLIENT : STRATEGIC PLANNING
CONTRACTOR : CORNELL UNIVERSITY

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 01/27/1995
STUDY PROPOSAL APPROVED : 07/20/1995
ORIGINAL COMPLETION DATE: 10/31/1996
REVISED COMPLETION DATE : 01/31/1998
REVISION NUMBER : 2

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 130325

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	25383	140659	68325	130325	52558	114558
TOTAL COSTS	25383	140659	68325	130325	52558	114558

OBJECTIVE: To create a step-by-step manual of procedures and data requirements to perform life-cycle cost and network analysis for New York State Pavements.

PROGRESS: PROJECT COMPLETED 1/31/98.

PROJECT: R02006881 TITLE : LATERAL PROTECT SHORT TERM WK ZONES
SECTION: ADMINISTRATION INVESTIGATOR: D. MENCUCCI
CLIENT : SAFETY & HEALTH
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 160000

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

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PROJECT: R02008881 TITLE : CADD EXPERT SYS BLOWING SNOW CON
SECTION: ADMINISTRATION INVESTIGATOR: J. DOHERTY
CLIENT : NYSDOT TRANS MAINTENANCE DIVISION
CONTRACTOR : TRANS INFRASTRUCTURE CONSORTIUM

PROJECT INITIATION DATE : 08/27/1997
STUDY PROPOSAL DUE : 02/23/1998
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 465000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

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PROJECT: R02009881 TITLE : ITS BENEFITS AND COSTS
SECTION: ADMINISTRATION INVESTIGATOR: E. ROBERTS
CLIENT : ITS GROUP, PLANNING
CONTRACTOR : TRANS INFRASTRUCTURE CONSORTIUM

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 201200

PROJECT INITIATION DATE : 03/27/1998
STUDY PROPOSAL DUE : 09/23/1998
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

08/18/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
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PROJECT: R02010881 TITLE : AUTOMATING NYSDOT DATA COLLECTION
SECTION: ADMINISTRATION INVESTIGATOR: B. JOHNSON
CLIENT : SUPPORT SERVICES
CONTRACTOR : TRANS INFRASTRUCTURE CONSORTIUM

PROJECT INITIATION DATE : 03/27/1998
STUDY PROPOSAL DUE : 09/23/1998
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 123400

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

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PROJECT: R02011881 TITLE : GEN'G,DIS'G,TRACK'G NYSDOT DOCS
SECTION: ADMINISTRATION INVESTIGATOR: M. DONOVAN
CLIENT : SUPPORT SERVICES
CONTRACTOR : TRANS INFRASTRUCTURE CONSORTIUM

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 100000

PROJECT INITIATION DATE : 03/31/1998
STUDY PROPOSAL DUE : 09/27/1998
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

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PROJECT: R02012881 TITLE : MANAGING TORT LIABILITY
SECTION: ADMINISTRATION INVESTIGATOR: E. KERNESS
CLIENT : LEGAL AFFAIRS
CONTRACTOR : TRANS INFRASTRUCTURE CONSORTIUM

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 200000

PROJECT INITIATION DATE : 06/04/1998
STUDY PROPOSAL DUE : 12/01/1998
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

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PROJECT: R02013881 TITLE : PUB/PRIVATE PARTNERSHIPS TRANS NYS
SECTION: ADMINISTRATION INVESTIGATOR: J. PROCHERA
CLIENT : RESOURCE & RISK MANGEMENT
CONTRACTOR : TRANS INFRASTRUCTURE CONSORTIUM

PROJECT INITIATION DATE : 07/21/1998
STUDY PROPOSAL DUE : 01/17/1999
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 48000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

SECTION II

Experimentation Program
Type A & B Continuing Studies

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PROJECT: R21701881 TITLE : DETER OF LONG TERM PERF CHEMI GROUT
SECTION: TECH/TRAN INVESTIGATOR: DR. MATHIOUDAKIS
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 3000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 60000

PROJECT INITIATION DATE : 08/27/1991
STUDY PROPOSAL DUE : 02/23/1992
STUDY PROPOSAL COMPLETED: 12/30/1992
STUDY PROPOSAL APPROVED : 04/02/1993
ORIGINAL COMPLETION DATE: 05/31/1994
REVISED COMPLETION DATE : 03/31/1999
REVISION NUMBER : 5

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	47620	10000	70000	7692	67692
TOTAL COSTS	0	47620	10000	70000	7692	67692

OBJECTIVE: To develop a greater understanding of long-term performance of different types of chemical grouts in concrete.

PROGRESS: Project has been dormant due to the lack of staff.

SIX-MONTH PLAN: Report preparation pending staff availability.

PROJECT: R21801881 TITLE : ENGRG AUTOMATION TOOLS EVAL/IMP
SECTION: TECH/TRAN INVESTIGATOR: D. STREET
CLIENT : VARIOUS ENGINEERING GROUPS-DEPT
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 20000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	2130	2130	20000	20000	15385	15385
TOTAL COSTS	2130	2130	20000	20000	15385	15385

OBJECTIVE: To evaluate and provide recommendations, budget and puchasing support, implementation plans, standards and procedures review, coordination and guidance on emerging engineering information technology that is consistent with the needs of the Office of Engineering.

PROGRESS: Investigations and recommendations have been performed and completed on the following: (1) Engineering Workstation/PC Evaluation, (2) Re-Use Analysis of Unix Workstation Monitors; (3) Windows NT Operating System, (4) Drainage software, (5) Help desk software, and (6) Software maintenance and support analysis.

Continuing investigation and evaluation is in progress on:
(1) Engineering copiers, (2) Survey Data Collection Software, (3) Value Added Reseller maintenance support, (4) Visualization hardware and software, (5) Internet/Intranet Web Page software application, (6) CADD-Based Expert System for Blowing Snow Control, and (7) Transition of engineering applications software to Windows NT Operating System.

We anticipate the investigation and analysis list to grow and our activities in this area to broaden now that we have become more formally active in research and evaluation of engineering information technology as part of EAG Operation Plan.

PROJECT CLOSED.

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PROJECT: R22001881 TITLE : EVALUATION OF WINTER TRAF ACCIDENT
SECTION: TECH/TRAN INVESTIGATOR: DR. ELKORDY
CLIENT : MAINTENANCE/TRAFFIC & SAFETY
CONTRACTOR :

PROJECT INITIATION DATE : 04/27/1992
STUDY PROPOSAL DUE : 10/24/1992
STUDY PROPOSAL COMPLETED: 12/02/1992
STUDY PROPOSAL APPROVED : 06/11/1992
ORIGINAL COMPLETION DATE: 12/31/1995
REVISED COMPLETION DATE : 12/31/1999
REVISION NUMBER : 4

APPROVED STUDY PROPOSAL AMOUNT : 3500
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 106000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	96	52565	10000	106000	7692	103692
TOTAL COSTS	96	52565	10000	106000	7692	103692

OBJECTIVE: To find out if winter severity has statistically significant impact on vehicle traffic accidents. If impact does exist, to quantify the relation between winter severity and snow related traffic accidents.

PROGRESS: Accident data has been received in GIS format.

SIX-MONTH PLAN: Data analysis will start pending a new hire.

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PROJECT: R22401881 TITLE : DEV OF OVERLAY DESIGN PROCE FOR NYS
SECTION: MATER./PAVING INVESTIGATOR: DR. BENDAÑA
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 5000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 106000

PROJECT INITIATION DATE : 12/02/1993
STUDY PROPOSAL DUE : 05/31/1994
STUDY PROPOSAL COMPLETED: 07/06/1994
STUDY PROPOSAL APPROVED : 11/08/1994
ORIGINAL COMPLETION DATE: 09/30/1996
REVISED COMPLETION DATE : 09/30/2000
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	61237	275086	80000	500000	61538	265538
TOTAL COSTS	61237	275086	80000	500000	61538	265538

OBJECTIVE: To develop an overlay design procedure suitable for NYS and acceptable to FHWA.

PROGRESS: A mechanistic-empirical (M-E) design procedure for unbonded PCC overlays was formulated and developed to counteract the combined effects of loads and curling. Pavement design features, temperature gradients, traffic loading and a nondimensional performance model were used to predict probable fatigue lives for the unbonded PCC pavement. This procedure was used in the design section of I-490 from Gamsey Road to I-90 - P.I.N. 4490.5. The results indicate that for a slab length of 5.5 m, slab thickness of 225 mm, slab width of 4.2 m, a predicted traffic of sixty-four MESALS.

SIX-MONTH PLAN: Continue monitoring bonded and unbonded PCC overlays. Obtain a 3-D finite analysis program to calculate pavement responses and implement this program in the procedure.

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PROJECT: R22501881 TITLE : HYDR-FRAC TEST APPAR & PROC DET AGG
SECTION: MATER./PAVING INVESTIGATOR: DR. ELKORDY
CLIENT : MATERIALS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 5000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 200000

PROJECT INITIATION DATE : 01/24/1994
STUDY PROPOSAL DUE : 07/23/1994
STUDY PROPOSAL COMPLETED: 04/11/1994
STUDY PROPOSAL APPROVED : 06/10/1994
ORIGINAL COMPLETION DATE: 06/30/1996
REVISED COMPLETION DATE : 06/30/1999
REVISION NUMBER : 2

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	67630	25000	200000	19231	194231
TOTAL COSTS	0	67630	25000	220000	19231	214231

OBJECTIVE: To develop a simplified test chamber. The SHRP device is cumbersome, and would be difficult to assemble/disassemble as required for the test. To develop an automated test procdure, which will decrease the time and labor required to perform the SHRP test. To interpret results from the new test procedure and apparatus. To determine the relationships between the hydraulic-fracture test and aggregate performance. The expected speed of this procedure and a direct correlation of its results with other procedures would be a major improvement.

PROGRESS: Outfitting the test apparatus with computer control and data acquisition system is expected to be completed in a few weeks. Actual test and data analysis will be conducted soon after.

SIX-MONTH PLAN: Complete machine automation and conduct test and data analysis.

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PROJECT: R22601881 TITLE : PILE LD DIS EARTH PRESS INTE ABUT
SECTION: STRUCTURES INVESTIGATOR: DR. ALAMPALLI
CLIENT : STRUCTURES D&C,GEOTECHNICAL
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 250000

PROJECT INITIATION DATE : 06/12/1996
STUDY PROPOSAL DUE : 12/09/1996
STUDY PROPOSAL COMPLETED: 08/31/1996
STUDY PROPOSAL APPROVED : 08/31/1996
ORIGINAL COMPLETION DATE: 12/31/1998
REVISED COMPLETION DATE : 12/31/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	8553	61075	70000	250000	53846	108846
TOTAL COSTS	8553	61075	70000	250000	53846	108846

OBJECTIVE: To obtain reliable pile load-distribution and earth pressure distribution for structural design, including the effects of factors such as thermal stresses and skew.

PROGRESS: Project initiated June 1996. A study proposal and a survey questionnaire to collect data for existing practices has been prepared. Other states were surveyed for existing practices.

PROJECT CLOSED BY MEMO RJ PERRY TO JM O'CONNELL DATED APRIL 24, 1998.

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PROJECT: R22701881 TITLE : COMP MATLS HYWY BRIDGE CONST
SECTION: STRUCTURES INVESTIGATOR: T.ALBERSKI/DR.ALAMPALLI
CLIENT : SD&C, GEB, MB, CONST, DESIGN, MAINT
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 124000

PROJECT INITIATION DATE : 05/09/1997
STUDY PROPOSAL DUE : 11/05/1997
STUDY PROPOSAL COMPLETED: 04/30/1998
STUDY PROPOSAL APPROVED : 04/30/1998
ORIGINAL COMPLETION DATE: 08/31/2000
REVISED COMPLETION DATE : 08/31/2000
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	15560	30164	75000	124000	57692	57692
TOTAL COSTS	15560	30164	75000	124000	57692	57692

OBJECTIVE: 1) To investigate the feasibility of building an entire bridge, from foundation to appurtenance, using composite materials, and 2) Building a fully composite bridge and then monitoring its in-service performance.

PROGRESS: Study Proposal was published in May 1998 after peer review, in accordance with the Bureau's Policy & Procedure Manual. Established contact and cooperation with RPI Center for Composite Material Study. Literature search, bridge analysis, and material selection and design are in progress.

SIX-MONTH PLAN: Complete literature search, bridge analysis, and material selection and design.

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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PROJECT: R22801881 TITLE : POST-TENSIONING EX STL BR MEMBERS
SECTION: STRUCTURES INVESTIGATOR: DR. HAG-ELSAFI/DR. ALAMPALLI
CLIENT : STRUCTURES/HWY MAINTENANCE DIVIONS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 250000

PROJECT INITIATION DATE : 07/08/1997
STUDY PROPOSAL DUE : 01/04/1998
STUDY PROPOSAL COMPLETED: 04/30/1998
STUDY PROPOSAL APPROVED : 04/30/1998
ORIGINAL COMPLETION DATE: 08/31/2000
REVISED COMPLETION DATE : 08/31/2000
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	18614	25854	50000	250000	38462	40462
TOTAL COSTS	18614	25854	50000	250000	38462	40462

OBJECTIVE: Improve understanding of post-tensioning as a retrofit technique. Develop general design and construction guidelines for strengthening existing steel bridge members by post-tensioning.

PROGRESS: Draft Study Proposal was completed and was peer-reviewed in accordance with the Bureau's Policy & Procedure Manual.

SIX-MONTH PLAN: Complete literature review, and survey other state DOTs. Publish the Study Proposal. Collect data from BIS on bridges that will be impacted by this study.

SECTION III

Proposed Projects Not Yet Initiated

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **93-052 DEVELOPMENT OF IMPROVED PAVEMENT PERFORMANCE PREDICTION MODEL**

PROBLEM: The Department's current pavement management system plan calls for the development of model to predict performance of both rehabilitation and maintenance treatments, given site specific variables such as soils, climate, and traffic. Volume II of the Rehabilitation Manual only gives average expected service lives under limited conditions for each treatment. Predicts service life is an important input to the life-cycle cost analysis, whose results will decide the selection o the preferred treatment for each projects. NYSDOT does not have any formal and comprehensive pavements performance prediction models that can meet this pavement management requirement. The AASHTO pavement performance model that NYSDOT recently adopted was only calibrated with very limited past performance and experience.

OBJECTIVE: Validate and calibrate the AASHTO performance model. Develop new models that can predicts the effect of each rehabilitation and maintenance treatment on safety, serviceability, and service life of a projects, by properly considering relevant variables including soils, climate, traffic drainage features, and existing pavements conditions.

BENEFITS: At the project level, designs can be effectively made to accomplish the goals of improving safety and serviceability with the prediction models. The life-cycle cost analysis can yield more accurate results and the most cost-effective treatment can be selected. At the network level, the long-term future needs estimating can be based on the predicted service lives of the treatments.

CLIENT: Pavement Management Group, Office of Operations
Technical Services Division
Facilities Design Division

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 97-021 ELASTIC BEHAVIOR OF STEEL BRIDGES

PROBLEM: Load distribution to girders and forces on cross-frames are two issues related to the design of skewed steel bridges that have to been adequately addressed by AASHTO standard specifications (1). The effect of skew on dead-load and live-load distribution has been ignored by past specifications, and only the effect on live-load distribution has been included in the recent AASHTO LRFD specifications (2,3). However, more refined analysis of skewed bridges has shown that using LRFD specifications could result in significant error in estimating dead-load shear and reactions (4,5). Inaccurate estimation of these forces not only impacts girder design, but also bridge bearings and substructure design. Bearing and uplift problems during and after construction of skewed bridges are clear indications of inaccurate estimation of these reaction forces The presence of cross-frames on skewed steel bridges tends to increase their torsional rigidity, and subsequently introduces unintended forces cross-frame members and connections. These forces are sometimes of sufficient magnitude to cause damage to the cross-framer members and its connections to the girders.

OBJECTIVE: The objective of this project is two fold: 1) to investigate elastic behavior of skewed steel bridges to determine significance of skew for: a) dead-load and live-load distribution to girders, b) reaction forces and displacements at bridge bearings during and after construction, and c) forces on cross-frame members and cross-frame connections to the girders; and 2) to develop guidelines for design and construction of skewed bridges that consider these issues. Using these guidelines, engineers may identify situations where skew effect is significant and special analysis or construction methods are required, or when conventional methods could be used instead.

BENEFITS: Results from this project could significantly affect current design and construction procedures for skew steel-girder bridges. Monetary savings as a results of implementation of the findings of this project should be expected, because construction and maintenance-related problems will be eliminated or minimized.

CLIENT: Structures Division

SECTION IV

POOLED SPR FUND PROJECTS

New York State Department of Transportation
Transportation Research and Development Bureau

Performance Evaluation of Crumb Rubber Modified (CRM) Asphalt Pavements SPR-2 (166)

The growing nationwide interest in alternative uses for scrap tires has caused many state highway agencies to study and consider the use of CRM technology in asphalt pavements. There are two principal unresolved issues related to the use of CRM in asphalt paving materials. These modified asphalt mixtures must be field evaluated to establish expected levels of performance and cost-effectiveness. In addition, the ability to recycle asphalt paving mixes containing CRM has not been demonstrated.

These unresolved issues have been identified for study by the Secretary of Transportation in Section 1038 of the Intermodal Surface Transportation Efficiency Act (ISTEA) enacted in December 1991. The congressional study will collect and evaluate all existing available data. This pooled-fund study will address areas of field performance, cost-effectiveness, and recycling of CRM asphalt pavements which are not adequately resolved in the ISTEA study. In addition, the Administrator of the Environmental Protection Agency has the responsibility to determine the environmental and health effects of using CRM asphalt pavements and recycling pavements already containing crumb rubber. A potential exists for coupling this effort with pooled-fund projects.

The objectives of this study are:

1) Conduct laboratory evaluations of CRM asphalt mixtures to determine mix design and laboratory performance characteristics.

2) Design and construct test sections of CRM asphalt pavements in various climatic regions of the United States, including appropriate control sections, to evaluate field performance.

3) Conduct annual evaluations and document field performance of recycled CRM asphalt pavements.

New York State Contributions:

FFY 1993 - $5,000
FFY 1994 - $5,000
FFY 1995 - $5,000
FFY 1996 - $5,000
FFY 1997 - $5,000
FFY 1998 - $5,000
FFY 1999 - $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Long-Term Field Monitoring of Migrating Corrosion Inhibitors SPR - 2 (184)

The rehabilitation of corrosion-damaged, and chloride-contaminated concrete structures has become a major activity within state bridge maintenance programs. In many cases, repair techniques include the removal of deteriorated concrete, which is then replaced with new concrete, in the form of patches or an overlay. Although new concrete generally provides a passive environment for reinforcing steel, corrosion may continue, or be initiated due to potential differences between the new and old concrete. The use of corrosion inhibitors is one of the techniques used to mitigate continued corrosion of the reinforcing steel in the newly rehabilitated structure. These inhibitors are usually either applied to the scarified surface prior to patching, or included as an admixture to the patch material.

As part of SHRP Contract C-103, four (4) of the most promising corrosion inhibitors for these applications were tested and evaluated under laboratory conditions. Although positive results were obtained using actual bridge deck specimens, the need exists to evaluate these inhibitors on in-service structures.

The monitoring of full-scale treatments is proposed to gain more data on the length of time that the various inhibitors are actively providing protection, and environmental conditions that aid or hinder their effectiveness. Also, a field evaluation project would provide cost data for full-scale treatments. In addition to further evaluation of inhibitor effectiveness, a field study would identify special procedures and precautions that are required for success of the treatment. These include: construction delays associated with the use of inhibitors; how bond strength of the new concrete is effected, including procedures necessary to maximize the bond strength; and, the compatibility of the inhibitors with other corrosion protection methods.

These data could then be used to identify circumstances best suited for the use of inhibitors, and develop guidelines for proper application of the treatments.

New York State Contributions:

FFY 1996 - $6,000
FFY 1997 - $6,000
FFY 1998 - $6,000
FFY 1999 - $6,000
FFY 2000 - $6,000

New York State Department of Transportation
Transportation Research and Development Bureau

Roadside Safety Hardware Crash Tested to NCHRP Report 350 SPR 2- (187)

NCHRP Report No. 350 contains recommended procedures for crash testing and evaluating highway safety features. The objective of this study is to use finite element analysis and crash tests to evaluate various types of safety appurtenances that would be used in several States that were not tested in other programs.

New York State Contributions:

FFY 1996 - $5,000
FFY 1997 - $5,000
FFY 1998 - $5,000
FFY 1999 - $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Support, Maintenance and Refinement of the National Transportation Control/ITS Communication Protocol (NTCIP) SPR 2- (189)

The NTCIP is a collection of public domain communication protocols which standardize the interconnectivity of traffic control devices and traffic control centers. These protocols are being developed to ensure the integration of ITS technologies with existing and future electronic highway infrastructure. Although the current development effort is focusing on the interconnectivity of traffic signal controllers, efforts to develop communications protocols for variable message signs, ramp metering devices, closed circuit television systems, highway advisory radio, and other related devices are already underway.

The objective of this effort is to provide for the support maintenance, and refinement of the protocol over the next five years.

At least two States have already passed legislation requiring interconnecting capability among the different traffic control devices and it is expected that other States will also follow this trend.

New York State Contributions:

FFY 1996 - $5,000
FFY 1997 - $5,000
FFY 1998 - $5,000
FFY 1999 - $5,000
FFY 2000 - $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Bridge Fatigue Screening, Monitoring and Retrofitting Manual
SPR-2(197)

An increase in the number of steel bridges, with extensive fatigue cracking has caused many bridge owners to become concerned about the extent of future fatigue repairs and to seek more ingenious and creative methods for dealing with the cracking problems. The decision to repair fatigue cracks or postpone action until a replacement can be built depends on factors including the consequences of failure, ability to accurately determine stresses, repair complexity, steel material properties, and quality of old welds and design details.

The objective of the research is to develop a comprehensive manual which provides a methodology for determining the severity of fatigue cracking on bridges, and retrofits for fatigue-susceptible bridges and details. The manual will 1) provide a method to screen bridges according to their potential for critical fatigue cracking; 2) recommend methods to analyze stresses and deformations in order to determine which ones to retrofit and/or monitor; 3) describe installation and recommend usage of fatigue monitoring instrumentation; 4) recommend repair and retrofit details which may include predicted life-cycle costs for various repair details.

New York State Contribution:
FFY 1998 - $10,000
FFY 1999 - $10,000
FFY 2000 - $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Engineered Flowable Fill Bridge Approaches plus Abutment and Culvert Backfill Using Inexpensive Recycled Materials.
SPR-2(198)

The idea of using flowable fill for bridge abutments and low water crossings has been shown viable in field projects but these projects have not documented the performance or design procedure for using the technology. The advantages of using engineered flowable fill near bridge abutments is that it does not require vibratory compaction equipment or labor near the structure, does not settle with time and the pavement can be placed directly on the fill without additional surface preparation. Many states have adopted specifications for flowable fills based on conventional fly ashes, using standard aggregates. This study will attempt to expand the range and content of recycled materials available for use in flowable fills. Non standard aggregates such as glass cullet, sand blasting wastes and recycled concretes will be explored. Flowable fills can be engineered to have any desired permeability and can accommodate utility work without traffic disruptions. The proposed research would develop specific design procedures for using engineered flowable fill bridge approaches, culvert placements and abutment backfills, giving state highway departments the potential to reduce construction and maintenance costs while meeting their objectives for using waste stream products, reducing landfill space and reducing the areas required for supplying virgin fill and cement.

New York State Contribution:
FFY 1998 - $6,000
FFY 1999 - $6,000

New York State Department of Transportation
Transportation Research and Development Bureau

Optimal Acceptance Procedures for Statistical Construction Specifications
SPR-2(199)

Statistical acceptance procedures are currently used be approximately 75 percent of the states and their use continues to grow. Whether the acceptance procedures lead to simple pass/fail decisions or adjustments in contract price, the proper design of such plans is critical to their performance. Poorly conceived plans may range from being totally ineffective to being impractically severe. The fact that both extremes have been found in published national standards indicates that these problems are not isolated cases but are fairly widespread. There is a need to put statistical quality assurance on a sound scientific and mathematical footing, make it rationally comprehensible to users in the transportation field, and widely disseminate this information in the form of an easily understood reference manual.

The research will 1) analyze the wide variety of acceptance procedures currently in use to determine which are best in terms of sampling efficiency or economics and which best detect poor quality when it exists and accept good quality work a high percentage of the time; 2) clearly explain and demonstrate the advantages and disadvantages of the various methods in an understandable manner; 3) critically examine other decision making procedures used in conjunction with quality assurance programs; 4) identify specific problem areas and pitfalls; 5) address performance relationships, utility of the constructed product and suitable statistical measures of quality.

New York State Contributions:
FFY 1998 - 15,000

New York State Department of Transportation
Transportation Research and Development Bureau

Compilation and Evaluation of Results from High Performance Concrete Bridge Projects
SPR-2(200)

High Performance Concrete (H.C.) is an engineered concrete with enhanced durability and, if needed, increased strength designed to achieve specified performance characteristics related to durability and strength. Although it has been developed over the past 20 years and has been used successfully in buildings, it had limited use in bridges prior to 1993.In 1993 FHWA initiated eleven bridge projects in ten states which incorporate H.C. in some or all of their bridge elements and which also include materials or structural experimentation.

When bridge engineers designed one of these bridges, they used design equations and guidance provided in the AASHTO Standard Specifications for Highway Bridges. These equations and guidance are for normal concrete and are limited to concretes with compressive strengths less than 10,00 psi(69 Mpa). In contrast, the H.C. bridge projects have designed compressive strengths as high as 14,700 psi (101 Mpa). In order for bridge designers to better utilize this new technology, more accurate equations and better design guidance need to be provided. This can be accomplished through the compilation and evaluation of research results from the joint State-FHA H.C. bridge projects and formatted for inclusion into the AASHTO Standard Specifications for Highway Bridges, the AASHTO LRFD Bridge Design Specifications and the AASHTO Materials Specifications.

New York State Contributions:
FFY 1998 - $10,000
FFY 1999 - $7,500

New York State Department of Transportation
Transportation Research and Development Bureau

Development of Portable Scour Monitoring Equipment
S-98-45

Each year many bridges are subjected to severe flood conditions and highway personnel must make critical decisions regarding the safety of these bridges. Decisions about bridge closure are based on measurements of scour around piers and abutments with portable scour monitoring devices. Portable echo sounders have been developed specifically for this purpose. Current portable equipment is adequate in many situations, however, significant accuracy problems with the use of echo sounders in high velocity streams, shallow water, and streams with very high suspended sediment loads have been noted. These conditions are typical of many alluvial streams where scour problems occur and, while conditions under which echo sounders are ineffective have been identified, the specific limitations of the devices have not been fully investigated. The proposed research would provide designs and proper operating procedures for this equipment allowing efficient and accurate collection of reliable streamed elevations during flooding conditions that can be used to ensure public safety from bridge collapse and prevent unnecessary bridge closure and consequential traffic interruptions.

New York State Contributions:

FFY 1998 - $5,000
FFY 1999 - $5,000

SECTION V

ADMINISTRATION/TRAINING

PROJECT: 10-01 ADMINISTRATION

SCOPE: A variety of recurring activities are required to administer the Bureau's research program. Charges are made on the basis of the particular service or function performed within the following categories:

Managerial Operations: The day-to-day activities which involve aspects of this Bureau's administration (e.g., inquiries, explanations, and justifications) which must be delegated, clarified, followed up, and finally resolved. These activities also deal with the broad general aspects of administration such as policy, procedures, balance, and funding of the research program. These tasks are performed exclusively by the Director, Section Heads, and Administrative Assistant. The level of effort varies among these individuals depending on their specific responsibilities and assignments.

Program Development: Efforts required to prepare and publish the Bureau's Federal Highway Planning and Research Work Program, and the submission of appropriate projects for consideration in the National Cooperative Highway Research Program (NCHRP), or to FHWA for consideration for administrative contract work, pooled-fund studies, or FHWA research are charged to this function.

Program Control: Activities under this function involve monitoring expenditures and work accomplished in relation to projected progress schedules and budgeted costs. It also concerns efforts directed toward ensuring that the research remains within the stated scope and objectives, and that marginal work or work which is no longer considered necessary by the requesting program manager is terminated.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $330,000

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01001881 TITLE : ADMINISTRATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 330000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	234518	234518	330000	330000	253846	253846
TOTAL COSTS	234518	234518	330000	330000	253846	253846

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01002881 TITLE : ADMINISTRATION-PROJ SEL/PROG DEV
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 75000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	48760	48760	75000	75000	57692	57692
TOTAL COSTS	48760	48760	75000	75000	57692	57692

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01003881 TITLE : ADMINISTRATION - UTRC
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 25000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	16440	16440	25000	25000	19231	19231
TOTAL COSTS	16440	16440	25000	25000	19231	19231

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01004881 TITLE : ADMIN - CONSORTIUM/CONTRACT RES
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 125000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	52811	52811	125000	125000	96154	96154
TOTAL COSTS	52811	52811	125000	125000	96154	96154

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **16-0 TRAINING**

OBJECTIVE:

SCOPE: Activities conducted under this project are directed at providing continuing education and specialized instruction necessary for the completion of federal-aid projects. In this program period:

1. On September 16, 1997, R. Mu and O. Hag-Elsafi attended a seminar entitled "The Science and Art of Practical Stress/Strain Measurements." The seminar was held in Albany and offered by the Measurements Group, Inc. Raleigh, NC.

2. Makbul Hossain attended a training course on "Advanced Composite Materials" by Professor Ronald Bucinell of Union College on December 8-9, 1997.

3. Julian Bendaña and Makbul Hossain attended the NHI Course on Materials Control and Acceptance-Quality Assurance.

STATUS: Continuing

ESTIMATED 1998-99 COSTS: $50,000

CLIENT: All Department Units

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01600881 TITLE : TRAINING
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 40000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	39174	39174	40000	40000	30769	30769
TOTAL COSTS	39174	39174	40000	40000	30769	30769

SECTION VI
COMPLETED PROJECTS

PUBLICATIONS DURING THE PERIOD 10/1/97 - 9/30/98

RESEARCH REPORTS

RR 169	Precast Prestressed-Concrete Double-T Beams for Short-Span Bridges	7/98

SPECIAL REPORTS

SR 128	Strength Criteria for Cast-Iron Items in Highway Drainage Structures	12/97
SR 129	Long-term Performance of Elastomeric Bridge Bearings	3/98

CLIENT REPORTS

CR 79	Finite-Element Analysis to Counteract Uplift of a Doubly Curved Steel Bridge	11/97
CR 80	Field Tests of an Automated Pavement-Data Collector	5/98

STUDY PROPOSAL

Project 227 Composite Materials in Highway Bridge Construction 3/98

NEWSLETTERS

Transportation R&D News: Nos. 72, 73, 74, 75
(No. 73 was a special issue featuring extended interview with Tom Lewis, author of book and PBS video documentary titled *Divided Highways: Building the Interstate Highways, Transforming American Life)*

TNT: Technology News Transfer: Vol. 9, Nos. 1, 2, ,3 ,4

TRANSPORTATION RESEARCH BOARD PAPERS

1998 Annual Meeting

Long-Term Performance of Integral Bridges and Jointless Decks
In-Service Performacne of Shear Keys in Adjacent Prestressed-Beam Bridges in New York
Strength Criteria for Cast-Iron Items in Highway Drainage Structures
Capacity-Building for State Transportation Researchers: New York's Experience

1999 Annual Meeting

Long-Term Performacne of Elastomeric Bridge Bearings
Prestressed Precast-Concrete Double-T Beams for Short-Span Bridges
Load Tests of a Severely Curved Steel I-Girder Bridge

OTHER PUBLICATIONS

SUPERPAVE: 1997-98 National Implementation (Report of the AASHTO Lead States Team)	7/98
A Manual for Policies and Procedures for Operation of the TR&D Bureau	10/97
Implementing SHRP Products in New York: Fourth Progress Report	10/97
AASHTO Guide for Development of Rest Areas (1998 final draft before AASHTO submission)	

SECTION VII

100% STATE FUNDED PROJECTS

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R01001801 TITLE : ADMINISTRATION STATE FUND EFFORTS
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : N/A
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 90000

PROJECT INITIATION DATE : 10/01/1997
STUDY PROPOSAL DUE : 03/30/1998
STUDY PROPOSAL COMPLETED: 10/01/1997
STUDY PROPOSAL APPROVED : 10/01/1997
ORIGINAL COMPLETION DATE: 09/30/1998
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	26007	26007	90000	90000	69231	69231
TOTAL COSTS	26007	26007	90000	90000	69231	69231

PROJECT: R01239801 TITLE : UTRC - CURING
SECTION: MATER./PAVING INVESTIGATOR: CHOU
CLIENT : STRUCTURES/MATERIALS
CONTRACTOR : RPI

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 10000

PROJECT INITIATION DATE : 01/20/1993
STUDY PROPOSAL DUE : 07/19/1993
STUDY PROPOSAL COMPLETED: 02/05/1993
STUDY PROPOSAL APPROVED : 09/01/1994
ORIGINAL COMPLETION DATE: 09/30/1997
REVISED COMPLETION DATE : 09/30/1999
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	11152	105927	5000	5000	3846	3846
TOTAL COSTS	11152	105927	5000	5000	3846	3846

OBJECTIVE: To perdict the temperature and water fraction profiles that exist during the first 72 hours of curing in concrete pavements and bridge decks using conventional (Class H) concrete or high performance (Class HP) concrete, and to determine under what conditions concrete can be successfully place.

PROGRESS: A field experiment has been conducted on the bridge over the Kaydeross Creek in Saratoga County for verifying the 2-dimensional model for predicting the temperature profile of a bridge deck with HP concrete during the first 72 hours of curing.

SIX-MONTH PLAN: (1) Complete the report on the Rome Bridge experiment; (2) complete the report on the Kaydeross Bridge experiment; and (3) conduct other field experiments for verifying the 2-dimension model applied to HP concrete bridge decks.

08/14/1998 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 7/F20 PROJECT STATUS REPORT
IAS RUN DATE IS 07/08/1998 FHWA SEMI-ANNUAL

PROJECT: R22701801 TITLE : COMP MATLS HYWAY BRIDGE CONST
SECTION: STRUCTURES INVESTIGATOR: T.ALBERSKI/DR.ALAMPALLI
CLIENT : SD&C,GEB,MB, CONST,DESIGN, MAINT
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 185000

PROJECT INITIATION DATE : 05/09/1997
STUDY PROPOSAL DUE : 11/05/1997
STUDY PROPOSAL COMPLETED: 04/30/1998
STUDY PROPOSAL APPROVED : 04/30/1998
ORIGINAL COMPLETION DATE: 08/31/2000
REVISED COMPLETION DATE : 08/31/2000
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	10101	10101	15000	185000	11538	26538
TOTAL COSTS	10101	10101	15000	185000	11538	26538

OBJECTIVE: 1) To investigate the feasibility of building an entire bridge, from foundation to appurtenance, using composite materials, and 2) building a fully composite bridge and then monitoring its in-service performance.

PROGRESS: Study Proposal was published in May 1998 after peer review, in accordance with the Bureau's Policy & Procedure Manual. Established contact and cooperation with RPI Center for Composite Material Study. Literature search, bridge anlaysis, and material selection and design are in progress.

SIX-MONTH PLAN: Complete literature search, bridge analysis, and material selection and design.